



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/051,614	01/18/2002	Takafumi Yao	782_213	9025

25191 7590 08/05/2003

BURR & BROWN
PO BOX 7068
SYRACUSE, NY 13261-7068

EXAMINER

DICKEY, THOMAS L

ART UNIT PAPER NUMBER

2826

DATE MAILED: 08/05/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/051,614

Applicant(s)

YAO ET AL.

Examiner

Thomas L Dickey

Art Unit

2826

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 June 2003.
- 2a) ☒ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1 and 6 is/are rejected.
- 7) ☒ Claim(s) 2-5 and 7-9 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 18 January 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

Art Unit: 2826

DETAILED ACTION

1. The amendment filed 5 June 2003 has been entered.

Specification

2. The substitute specification filed 5 June 2003 has been entered.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over MATSUBARA et al. (EP 977278 A2) in view of MARTIN (3,916,510).

Matsubara et al. discloses a semiconductor light-emitting element with a substrate 20 that functions as a first light emitting layer to emit a yellow color light ("yellow color light" being commonly understood to mean light having wavelengths between 577 and 597 nanometers, see Academic Press Dictionary of Science and technology, page 2388, and Matsubara et al.'s first light emitting layer, although showing peak emission at 630 nm, nonetheless disclosed as having significant emissions at 577-597 nm, note figure 6 of Matsubara et al.) and made of II-VI semiconductor compounds (ZnSe), and a second

Art Unit: 2826

epitaxial layer group 22-23-24-25 to emit a blue color light which is provided on the first light emitting layer 20 and made of II-VI semiconductor compounds, wherein the second epitaxial layer group 22-23-24-25 includes a light-emitting active layer 23-24-25 made of a II-VI semiconductor compound containing Zn, Se, Te and Cd. Note figures 3-6 and column 16 lines 15-35 of Matsubara et al.

Although Matsubara et al. discloses that second epitaxial layer group 22-23-24-25 is provided on first light emitting layer 20, Matsubara et al. does not disclose that first light emitting layer 20 is a first epitaxial layer group nor does Matsubara et al. disclose a substrate upon which the first and second epitaxial layer groups are formed. However, Martin discloses that, in Martin's words (emphasis added) "Typical of [substrates which cleave predictably when scribed] are GaAs of low resistivity which is commercially available in a composite form including planar epitaxial layers of such materials as ZnS and ZnSe ... The ZnSe-GaAs composite material is particularly well suited for large area substrates since the lattice mismatch between the epitaxial layer and substrate is very low, being of the order of approximately one-half of one percent.". Therefore, it would have been obvious to a person having skill in the art to form the first light emitting layer of Matsubara et al.'s semiconductor light-emitting element as the epitaxial layer part of the commercially available GaAs-ZnSe substrate (thus also forming the second epitaxial layer group on the GaAs substrate, since this second layer is formed on the first layer and the wafer comes from its commercial source with the first layer already formed on the GaAs substrate), with the GaAs wafer providing the supportive substrate, such as

Art Unit: 2826

taught by Martin in order to build the semiconductor light-emitting element in commercial quantities on commercially available full sized GaAs-ZnSe wafers which can be easily scribed and cut to produce individual semiconductor light-emitting elements after processing, and which, because of the close lattice match between GaAs and ZnSe, would allow for good crystal qualities in the light emitting first epitaxial layer group, said good crystal qualities allowing for the second epitaxial layer group, which is grown onto the first, to in its turn have good crystal qualities.

Allowable Subject Matter

4. Claims 2-5 and 7-9 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

5. Applicant's arguments with respect to claims 1-9 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thomas L Dickey whose telephone number is 703-308-0980. The examiner can normally be reached on Tues-Friday 8-6. Any inquiry

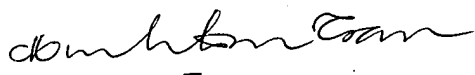
Art Unit: 2826

concerning this communication or earlier communications from the examiner should be directed to Thomas L Dickey whose telephone number is 703-308-0980. The examiner can normally be reached on Tues-Friday 8-6.

~~If attempts to reach the examiner by telephone are unsuccessful, the examiner's~~ supervisor, Nathan J Flynn can be reached on 703-308-6601. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9318 for regular communications and 703-872-9319 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-0956.

TLD
03/2003


Minhloan Tran
Primary Examiner
Art Unit 2826